Utility of intracardiac echocardiography in catheter based ablation: single centre experience

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Background: With the advances in catheter based ablation therapies for control/elimination of complex cardiac arrhythmias, imaging tools have also evolved to improve the safety and efficacy of procedures. Intracardiac echocardiography (ICE) is one such promising technique used for imaging intracardiac structures. This may serve as an alternative to transesophageal echocardiography which usually requires general anaesthesia. Though considered very useful in identifying adequate tissue catheter contact, ICE is an underutilized technique in our country in catheter based ablation procedures. We describe our experience with ICE in the catheter ablation of complex cardiac conditions.
Methods and Results: We retrospectively analyzed the data of 16 patients, who underwent catheter based ablation with ICE guidance at our Institute from September 2012 till June 2014. The mean age was 38 ± 15.4 years. Thirteen were male. Due to previous failed procedures, repeat ablations were performed in 4/16 patients: two false tendon ventricular tachycardia (VT), one papillary muscle VT and one fasicular VT. Three dimensional (3D) Carto guided electroanatomic mapping system (EAMS) was used in all patients under conscious sedation. Arrhythmias ablated were: fasicular VT 7, false tendon related VT 4, scar VT 1, papillary muscle VT 1 and atrial fibrillation 1. Two patients had hypertrophic obstructive cardiomyopathy in whom catheter based septal reduction was performed due to non suitability for alcohol septal reduction. Procedural success was 100%. Procedural and post procedural complications were nil. None of the patients required general anaesthesia for the procedure.
Conclusion: ICE augments the valuable role of 3D EAMS in complex catheter ablation procedures and avoids the use of general anesthesia.

To study clinical and electrophysiological characteristics in patients with atrioventricular reentrant and atrioventricular nodal reentrant tachycardia

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Background: Atrioventricular nodal reentrant tachycardia (AVNRT)and atrioventricular reentrant tachycardia(AVRT)represent about 90% of supraventricular tachycardias.The aim of this study is to assess and compare clinical and electrophysiological (EP) profile in patients of AVNRT and AVRT.
Methods: The study population consisted of 76 patients diagnosed to have AVNRT (n=44), AVRT (n=32) during study period who underwent EP study and RFA.
Results: Mean age of the population with AVNRT was 46.9±12.3yrs.There were 26 (59.1%) males and 18(40.9%)females.Mean age of onset of AVNRT was 43±13.3yrs.Palpitations (100%) was the most common symptom in patients of AVNRT followed by chest pain (27.3%). Structural heart disease was present in 5 (11.4%) patients of AVNRT. In 18 (40.9%)patients of AVNRT, AH jump was seen. Mean Cycle Length (CL) was 769.5±124.3 ms, mean AH interval was 69.1±20.7 ms, mean HV interval was 40.3±9.1 ms. Transient AV block after RFA occurred in 2 patients of AVNRT which recovered spontaneously.Relapse occurred in 3 patients over a follow up period of 12 months.Mean age of the population with AVRT was 40+/-12.8 yrs.There were 17 (53.1 %) males and 15 (46.9 %) females.Mean age of onset of AVRT was 36.8±14 yrs. Palpitations (96.9%) was the most common symptom in patients of AVRT followed by chest pain (31.3%). Structural heart disease was present in 6 (18%) patients.AVRT with concealed accessory pathway was seen in 12 patients (37.5%). Left lateral pathway (34.4%) was the most common pathway present followed by right postero septal pathway (18.6%).
Conclusion: Patients with AVRT have a lower mean age of symptom onset compared with those with AVNRT.Clinical presentation was quite similar in both the groups.There was no significant difference in average number of burns used for RFA in both the groups.Complications like transient AV block were seen mostly in AVNRT patients.There was no significant difference in occurrence of relapse in patients of AVNRT and AVRT.

Demographic profile of supraventricular tachycardia in a tertiary care centre

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Background: Few studies have examined the prevalence of SVT. The aim of this study was to study the demograhics and clinical profile of SVT.
Methods: Retrospective observational study. Analysis of case records and ECG of 957 patients with definitive diagnosis of the mechanism of SVT made during EPS viz AVNRT, AVRT, atrial flutter, atrial tachycardia (AT) and atrial fibrillation (AF).
Results: Most common arrhythmia was AVNRT (56%) followed by AVRT (28.4%). AVNRT was most commonly seen in females (61.6%) with hypertension (17%) as the most common association followed by diabetes mellitus (7%) and congenital heart disease (5%). Atrial septal defect (3%) was the most common congenital heart disease seen in AVNRT. AVRT had the earliest mean age of presentation at 35 years and more common in males (61.7%). Most common form of AVRT was manifest conduction (79%) with left lateral pathway (54%) followed by right posteroseptal pathway (25%) as the most common sub types. Concealed pathway was seen in 21% of AVRT with left lateral concealed pathway as the most common subtype (68%). Ebstein's anomaly (3%) was the most common congenital heart disease seen in AVRT. Paroxysmal AF was seen in 17 (37.7%) patients and AF with Wolff-Parkinson-White syndrome (WPW) seen in 18 (40%) patients. Left lateral pathway was also most common in patients with WPW presenting as AF. No recurrence was seen after AVNRT, atrial flutter and atrial tachycardia. 10% of AVRT cases had recurrences which were reablated successfully. AF patients were ablated successfully in patients with WPW. There was no mortality reported.
Conclusions: This study provides an insight into the demographic data of SVT who underwent EP study in Indian population which could help in the natural history, outcome and management of SVT.